

Patent Claims

1. A method for operating a drive train of a motor
5 vehicle with
- an automated gearwheel change gearbox (15),
 - an automated clutch (14) and
 - a control device (17) for controlling the
10 gearwheel change gearbox (15) and the clutch (14),
the clutch (14) being opened when shifting takes place
from an original gear to a target gear of the gearwheel
change gearbox (15),
characterized in that the control device (17)
- triggers the clutch (14) for closing before the
15 target gear is fully engaged and
 - determines a triggering moment t_{trig} for the clutch
(14) as a function of operational parameters
and/or state variables of the drive train (10).
- 20 2. The method as claimed in claim 1, characterized in
that the control device (17) determines the triggering
moment t_{trig} as a function of a desired profile of a
clutch position during closing of the clutch (14).
- 25 3. The method as claimed in claim 2, characterized in
that the desired profile has a smaller gradient within
a range around a gripping point of the clutch (14) than
outside said range.

4. The method as claimed in claim 1, 2 or 3, characterized in that the control device (17)

- determines a first interval Δt_{eng} which is
5 necessary in order to engage the target gear and
- a second interval Δt_{grip} which is necessary in order
to reach the gripping point of the clutch (14) and
determines the triggering moment t_{trig} from said
intervals.

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5. The method as claimed in claim 4, characterized in that the control device (17) takes a safety period Δt_{saf} into consideration in the determination of the triggering moment t_{trig} .

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6. The method as claimed in claim 5, characterized in that the safety period Δt_{saf} is variable.

7. The method as claimed in one of claims 1 to 6, characterized in that the control device (17)

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- compares the clutch position with progress of the engagement of the target gear during closing of the clutch (14) and
- depending on a result of the comparison, changes
25 the desired profile of the clutch position.

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8. The method as claimed in claim 7, characterized in that the control device (17) opens the clutch (14) again after breaking off the closing of the clutch (17)
30 and the clutch (14) begins to close again only after the target gear is fully engaged.

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9. The method as claimed in claim 6, 7 or 8, characterized in that the safety period Δt_{saf} is varied as a function of

- 5 - a third interval Δt_{act} between a moment at which the target gear is fully engaged and a moment at which the clutch (14) reaches the gripping point and/or
- the result of said comparison and/or
- 10 - a failure of the engagement of the target gear.

10. The method as claimed in claim 7, characterized in that the control device (17) changes the desired
15 profile of the clutch position as a function of said comparison.